

Kit's Clever Coding Planner

Learning objective: To design and document an original algorithm for a computer program, focusing on logical sequencing and debugging.

Use this planner to help Kit the fox build a new program. Think about the specific steps (the algorithm) needed to complete a task. Remember to include 'inputs' (what the computer senses) and 'outputs' (what the computer does). If your code doesn't work, describe how you would 'debug' it.

Word bank: algorithm · sequence · input · output · debug · loop · variable · logic · execute

1. Project Goal: What is the main purpose of your program? Explain why this sequence of instructions is useful. (2 marks)

2. The Algorithm: Write a step-by-step sequence for your program. Use precise, clear language to explain how the code executes. (4 marks)

3. Input and Output: Identify one input your program requires and the corresponding output. Justify why the computer needs this specific input. (3 marks)

4. Debugging Challenge: Imagine your program has a 'bug' and produces an unexpected result. Compare and contrast two different ways you could find and fix this error. (4 marks)

5. Efficiency: How could you use a 'loop' to make your algorithm shorter or more efficient? Explain your reasoning. (3 marks)

6. Evaluation: What might happen if you changed the order of your steps? Predict the outcome and justify why the sequence matters in coding. (4 marks)

Extension challenge: Extension Task: Imagine you are adding a 'variable' to your code (like a score counter or a timer). Create a flow chart on a separate piece of paper showing how this variable changes based on the user's actions. Write a short paragraph explaining the logic behind your chosen variable.